CH2M HILL ENGINEERING CHANGE NOTICE

Page 1 of 9 ☐ DM ☒ FM ☐ TM

1a. **ECN** 725736 **R** 0

1b. **Proj. ECN** N/A - - R

2. **Simple Modification** ☒ Yes ☐ No	3. **Design Inputs** – For full ECNs, record information on the ECN-1 Form (not required for Simple Modifications)		4. **Date** July 31, 2008
5. **Originator's Name, Organization, MSIN, & Phone No.** John Elsen, Columbia Energy & Environmental Services (CEES), B8-12, 946-7111	6. **PrHA Number** No. 00080 R - 0 ☐ N/A	7. **USQ Number** No. TF - 08 - 1405 - D R - D ☐ N/A	8. **Related ECNs** N/A
9. **Title** 240-S-302 Pumping System Changes to Address Use Of The Polar Tanker	10. **Bldg. / Facility No.** N/A	11. **Equipment / Component ID** N/A	12. **Approval Designator** N/A
13. **Engineering Documents/Drawings to be Changed** (Incl. Sheet & Rev. Nos.) H-14-107514 Sheet 1, Rev. 0 (see page 3 for continuation)		14. **Safety Designation** ☐ SC ☐ SS ☒ GS ☐ N/A	15. **Expedited/Off-Shift ECN?** ☐ Yes ☒ No
16a. **Work Package Number** CLO-WO-07-0962 CLO-WO-07-0963	16b. **Modification Work Completed** Responsible Engineer / Date	16c. **Restored to Original Status (TM)** N/A Responsible Engineer / Date	17. **Fabrication Support ECN?** ☐ Yes ☒ No

18. **Description of the Change** (Use ECN Continuation pages as needed)

PROBLEM STATEMENT: An alternate transport tanker is necessary to support the transfer of pumped liquid from catch tank 240-S-302 located in the 200 West Area, to the 241-AP-106 DST located in the 200 East Area. The 5000 gallon Walker tanker was originally planned to support this operation. Due to a radiological hot-spot identified during the performance of base line surveying the Walker tanker is not to be utilized. The 5000 gallon Polar Tanker (H-9-203) will be utilized. The Polar tanker is a top load/unload tanker and will require pneumatic assistance for the DST off-load. Additionally, the Polar tanker has different hose connections than the Walker and requires alternate hose connections. Adapter assemblies are to be fabricated to support the use of the 240-S-302 pumping system hoses already fabricated and tested.

DEFINED SOLUTION: Update released design media as shown within this ECN to support changes for the alternate hose connections on the Polar tanker and to support the use of the existing Air Pressure Control Manifold (H-14-105394) and Water Control Skid (H-14-105395) at the 241-AP off load location.

See page 3 for continuation.

19. **Justification of the Change** (Use ECN Continuation pages as needed) Engineering Rework ☐ Yes ☒ No Training Impact ☐ Yes ☒ No

Prior to the use of the originally planned Walker tanker for transporting the pumped 240-S-302 liquids to 241-AP-106 a radiological hot-spot was identified during baseline radiological survey. Due to the hot-spot, it was determined that an alternate transport tanker would be used. The Polar tanker (H-9-203) will be used in place of the Walker tanker, in the 240-S-302 pumping system. The Polar tanker is a top load/unload tanker and has different style hose connectors than the Walker tanker. Alternate hose connectors and adapters will be used to support hose and breather filter installations during loading and unloading.
Additionally, the Polar tanker will be off-loaded using pneumatic assistance (15 psig), versus the planned gravity drain from the bottom off-load Walker tanker.

20. **ECN Category**

☐ **Direct Revision**
☒ **Supplemental**
☐ **Void/Cancel**

ECN Type

☐ **Supersedure**
☐ **Revision**

21. **Distribution**

Name	MSIN	Name	MSIN
DG Baide	S7-24	SM O'Toole	S7-90
RB Calmus	S7-75	SD Doss	S7-03
EO Thorne	R3-26	MH Brown	S7-03
JJ Elsen	B8-12	GJ Gauck	S7-24
MA Fish	S7-24		
SD Kozlowski	R2-58		
TL Faust	S5-07		

Release Stamp

AUG 25 2008
DATE:
STA:
HANFORD RELEASE
ID: 58

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☒ DM ☐ FM ☐ TM

1a. **ECN** 725736 R 0

1b. **Proj. ECN** N/A - - R

22. **Revisions Planned** (Include a brief description of the contents of each revision)

None

Note: All revisions shall have the approvals of the affected organizations as identified in block 12 "Approval Designator," on page 1 of this ECN.

23. **Commercial Grade Item Dedication Numbers** (associated with this design change)

None

24. **Engineering Data Transmittal Numbers** (associated with this design change, e.g., new drawings, new documents)

None

25. **Other Non Engineering (not in HDCS) documents that need to be modified due to this change**

Type of Document	Document Number	Update Completed On	Responsible Engineer (print/sign and date)
Alarm Response Procedure	N/A	N/A	N/A
Operations Procedure	N/A	N/A	N/A
Maintenance Procedure	N/A	N/A	N/A
N/A	N/A	N/A	N/A

26. **Field Change Notice(s) Used?**

☐ Yes ☒ No

If Yes, Record Information on the ECN-2 Form, attach form(s), include a description of the interim resolution on ECN Page 1, block 18, and identify permanent changes.

NOTE: ECNs are required to record and approve all FCNs issued. If the FCNs have not changed the original design media then they are just incorporated into the design media via an ECN. If the FCN did change the original design media then the ECN will include the necessary engineering changes to the original design media.

27. **Design Verification Required?**

☐ Yes ☒ No

If Yes, as a minimum attach the one page checklist from TFC-ENG-DESIGN-P-17.

28. **Approvals**

Facility/Project Signatures		Date	A/E Signatures		Date
Resp. Engineer	SM O'Toole M. H. Brown for	8-5-08	Originator/Design Agent	JJ Elsen	7/31/08
Resp. Manager	DG Baide	8-25-08	Professional Engineer		
Quality Assurance			Project Engineer		
IS&H Engineer			Quality Assurance		
NS&L Engineer			Safety		
Environ. Engineer			Designer		
Engineering Checker	MA Fish	8/5/08	Environ. Engineer		
Other	TR FARRIS	8/25/08	Other		
Other			Other		
Other			DEPARTMENT OF ENERGY / OFFICE OF RIVER PROTECTION		
Other			Signature or a Control Number that tracks the Approval Signature		
Other					
Other			ADDITIONAL SIGNATURES		
Other					
Other					

Block 13 continued:

H-14-107514 Sheet 2, Rev. 0
H-14-107515 Sheet 1, Rev. 0

Block 18 continued:

SUPPORTING ANALYSIS: The Polar tanker is compliant and certified for the transportation of Type A/LSA-II radioactive waste. The use of the Polar tanker is still governed by Hanford Site Shipping and Receiving. The new Polar Tank Adapter Assembly (H-14-107514-080) supports the use of the existing S-302 hose assemblies that have been built and tested, for filling the Polar tanker with either pumped liquid from S-302 or a secondary non-contaminated assembly for flush water. The new Tanker Air Hose Assembly (H-14-107514-090) will be used to connect the existing Air Pressure Control Manifold (H-14-105394) to the Polar tanker for pneumatic assisted off-load. The new Water Control Skid Adapter Assembly (H-14-107514-100) is to be used to connect the existing Tanker Water Hose Assembly (H-14-107514-070) to the existing Water Control Skid (H-14-105395), planned for use at the DST off load location. An alternate breather filter assembly design is necessary to support the installation of a Flanders 40 CFM radial filter onto the dry disconnect fitting currently installed on the Polar tanker.

H-14-107514 Sheet 1; Add item -080 Polar Tanker Adapter Assembly and -090 Tanker Air Hose Assembly and -100 Water Control Skid Adapter Assembly, update general notes 8 and 11 to support pressure testing of new items, add labeling note 12, update parts list to reflect additional item; changes as shown on page 5.

H-14-107514 Sheet 2; Add details for items -080 Polar Tanker Adapter Assembly and -090 Tanker Air Hose Assembly and -100 Water Control Skid Adapter Assembly , add dust plug item 42 to end of Off Loading Hose Assembly; changes as shown on page 7.

H-14-107515 Sheet 1; Add Polar Tanker Breather Filter Assembly item 2, and associated parts to drawing; changes as shown on page 9.

Note: An AutoCAD page may be used in place of this form (the header section items must be included on the AutoCAD page).

Document/Drawing No. H-14-107514 Sheet 1 Revision 0

WAS:

GENERAL NOTES: (UNLESS OTHERWISE SPECIFIED)

1. ALL DIMENSIONS ARE IN INCHES. FABRICATION TOLERANCES AS SHOWN.
2. BREAK ALL SHARP EDGES AND REMOVE ALL BURRS.
3. SEAL PIPE THREADS ON HOSES WITH LOCTITE 567 PST WITH ACTIVATOR 7649 PER MFG DIRECTIONS.
4. ALL HOSE END CONNECTIONS SHALL BE CRIMPED OR SWAGED AND INSTALLED PER MANUFACTURERS SPECIFICATIONS.
5. HOSE LENGTH TOLERANCE IS ±2'.
6. HOSE ASSEMBLY ITEMS 25, 28, AND 39 TO BE HYDROSTATICALLY TESTED BY MANUFACTURER IN ACCORDANCE WITH RUBBER MANUFACTURERS ASSOCIATION. DESIGN PRESSURE FOR HOSE ASSEMBLIES IS 250 PSIG. PERFORM HYDROSTATIC PRESSURE TEST TO 500 PSIG +10/-0 PER RMA-IP-2. MAINTAIN PRESSURE FOR 5 MINUTES WHILE INSPECTING FOR LEAKS, FITTING SLIPPAGE, OR WEAKNESS OF HOSE STRUCTURE.
7. FOLLOWING FABRICATION OF WATER AND DISCHARGE HOSE ASSEMBLIES PERFORM HYDROSTATIC PRESSURE TEST OF ALL HOSE ASSEMBLIES TO 375 PSIG +10/-0 PSIG PER ASME B31.3. MAINTAIN PRESSURE FOR 10 MINUTES AND VERIFY NO LEAKAGE FROM END CONNECTIONS AND HOSE. COMPLETELY DRAIN ALL HOSE ASSEMBLIES FOLLOWING TESTING.
8. FOLLOWING FABRICATION OF AIR HOSE ASSEMBLIES, PERFORM PNEUMATIC PRESSURE TEST ON EACH ASSEMBLY TO 187.5 PSIG +5/-0 PSIG PER ASME B31.3. MAINTAIN PRESSURE FOR 10 MINUTES AND VERIFY NO LEAKAGE FROM THREADED CONNECTIONS.

9. INSTALL APPROPRIATE CONNECTION TO MATE WITH SELECTED FIELD AIR COMPRESSOR UNIT AND SUPPLIED SPARE QUICK DISCONNECT PLUG.

10. HOSE ASSEMBLY ITEMS 34, TO BE HYDROSTATICALLY TESTED BY MANUFACTURER IN ACCORDANCE WITH RUBBER MANUFACTURERS ASSOCIATION. DESIGN PRESSURE FOR HOSE ASSEMBLY IS 150 PSIG. PERFORM HYDROSTATIC PRESSURE TEST TO 300 PSIG +10/-0 PER RMA-IP-2. MAINTAIN PRESSURE FOR 5 MINUTES WHILE INSPECTING FOR LEAKS, FITTING SLIPPAGE, OR WEAKNESS OF HOSE STRUCTURE.
11. FOLLOWING FABRICATION OF OFFLOADING HOSE ASSEMBLY (ITEM 6) PERFORM HYDROSTATIC PRESSURE TEST TO 225 PSIG +10/-0 PSIG PER ASME B31.3. MAINTAIN PRESSURE FOR 10 MINUTES AND VERIFY NO LEAKAGE FROM END CONNECTIONS AND HOSE. COMPLETELY DRAIN HOSE ASSEMBLY FOLLOWING TESTING.

PARTS LIST/MATERIAL LIST

QTY REQD							PARTS / DASH NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO
-070	-090	-050	-040	-030	-020	-010					
1								CONCENTRIC REDUCER, 2" FNPT X 1" FNPT, SST	ASTM A182	2	44
1							200-F-SS	ADAPTER, MALE, 2" X 2" MNPT	DIXON	2	45
1							200-DC-SS	DUST CAP	DIXON	2	46
					1		N45BDU-EZMI	PRESSURE REDUCING VALVE 1" FNPT X 1" FNPT, 25-75 PSI	WATTS	1	47
					1		B-16-HRN-12	HEX REDUCING NIPPLE, 1" MNPT X 3/4" MNPT	SWAGELOK	1	48
					1		B6-KP31	QUICK DISCONNECT, MALE, 3/4" FNPT	HANSEN	1	49
					1		P-PDC-6-HK	DUST CAP (6-HK)	HANSEN	1	50
						1	P-SDC-6-HK	DUST PLUG, 3/4" (6-HK)	HANSEN	1	51

PARTS LIST/MATERIAL LIST

QTY REQD							PARTS / DASH NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO
-070	-090	-050	-040	-030	-020	-010					
						X	-010	FLUSH WATER HOSE ASSEMBLY (FLUSH MANIFOLD TO PUMP RISER BOX)		1	1
					X		-020	PUMP FLUSH HOSE ASSEMBLY (WATER TRUCK TO FLUSH MANIFOLD)		1	2
				X			-030	AIR HOSE ASSEMBLY (COMPRESSOR TO FLUSH MANIFOLD)		1	3
			X				-040	DISCHARGE HOSE ASSEMBLY (PUMP RISER BOX TO VALVE MANIFOLD)		2	4
		X					-050	DISCHARGE HOSE ASSEMBLY (VALVE MANIFOLD TO TANKER)		2	5
	X						-060	OFF LOADING HOSE ASSEMBLY (TANKER TO 241-AP TANK)		2	6
X							-070	TANKER WATER HOSE ASSEMBLY (WATER TRUCK TO TANKER)		2	7
											8
											9
											10
											11
											12
											13
											14
			1				ML8-KP36	QUICK DISCONNECT, MALE, 1" FNPT	HANSEN	2	15
		2	1				SS-16-HN	HEX NIPPLE, 1" MNPT	SWAGELOK	2	16
					1	1	100-DP-SS	DUST PLUG	DIXON	1,2	17
1		2	1				ML8-HP36	QUICK DISCONNECT, FEMALE, 1" FNPT	HANSEN	2	18
				1			ML4-HP26	QUICK DISCONNECT, FEMALE, 1/2" FNPT	HANSEN	1	19
				1			P-SDC-4-HK	DUST PLUG, 1/2" (4-HK)	HANSEN	1	20
			1				P-PDC-8-HK	DUST CAP, 1" (8-HK)	HANSEN	2	21
		2	1				71053RRL	BALL VALVE, FULL PORT, 1" FNPT	FLOWTEK	2	22
						1	ML6-HP31	QUICK DISCONNECT, FEMALE, 3/4" FNPT	HANSEN	1	23
1		2	1				P-SDC-8-HK	DUST PLUG, 1" (8-HK)	HANSEN	2	24
AR		AR	AR		AR			GOODYEAR 1" HORIZON, 300 W/ 1" MNPT ENDS	GOODYEAR	1,2	25
1							SS-16C4-1	CHECK VALVE, 1" FNPT	SWAGELOK	2	26
1							SS-16-HN	HEX NIPPLE, 1" MNPT	SWAGELOK	2	27
						AR		GOODYEAR 3/4" HORIZON, 300 W/ 3/4" MNPT ENDS	GOODYEAR	1	28
						1	SS-16-RB-12	REDUCING BUSHING, 1" MNPT X 3/4" FNPT	SWAGELOK	1	29
					1	1	RD100BL	COUPLER, FEMALE 1" FNPT, BOSS-LOCK	DIXON	1,2	30
											31
			1				B4-HP26	QUICK DISCONNECT, FEMALE, 1/2" FNPT	HANSEN	2	32
			1				B4-KP26	ADAPTER, MALE, QUICK DISCONNECT 1/2" FNPT	HANSEN	1,2	33
AR								GOODYEAR 1 1/2" HORIZON, 200 W/ 1 1/2" MNPT ENDS	GOODYEAR	2	34
1							RD200BL	COUPLER, FEMALE 2" FNPT, BOSS-LOCK	DIXON	2	35
1							(MD20D)	DRY COUPLING, 2" FNPT, SST	(PT COUPLING)	2	36
2								REDUCING BUSHING, 2" MNPT X 1 1/2" FNPT, SST	ASTM A182	2	37
1							200-DP-SS	DUST PLUG	DIXON	2	38
			AR					GOODYEAR 1/2" HORIZON, 300 W/ 1/2" MNPT ENDS	GOODYEAR	1,2	39
											40
											41
											42
											43

Document/Drawing No. H-14-107514 Sheet 1 Revision 0

IS:

GENERAL NOTES: (UNLESS OTHERWISE SPECIFIED)

1. ALL DIMENSIONS ARE IN INCHES. FABRICATION TOLERANCES AS SHOWN.
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5. HOSE LENGTH TOLERANCE IS ±2'.
6. HOSE ASSEMBLY ITEMS 25, 28, AND 39 TO BE HYDROSTATICALLY TESTED BY MANUFACTURER IN ACCORDANCE WITH RUBBER MANUFACTURERS ASSOCIATION. DESIGN PRESSURE FOR HOSE ASSEMBLIES IS 250 PSIG. PERFORM HYDROSTATIC PRESSURE TEST TO 500 PSIG +10/-0 PER RMA-IP-2. MAINTAIN PRESSURE FOR 5 MINUTES WHILE INSPECTING FOR LEAKS, FITTING SLIPPAGE, OR WEAKNESS OF HOSE STRUCTURE.
7. FOLLOWING FABRICATION OF WATER AND DISCHARGE HOSE ASSEMBLIES PERFORM HYDROSTATIC PRESSURE TEST OF ALL HOSE ASSEMBLIES TO 375 PSIG +10/-0 PSIG PER ASME B31.3. MAINTAIN PRESSURE FOR 10 MINUTES AND VERIFY NO LEAKAGE FROM END CONNECTIONS AND HOSE. COMPLETELY DRAIN ALL HOSE ASSEMBLIES FOLLOWING TESTING.
8. FOLLOWING FABRICATION OF AIR HOSE ASSEMBLIES (ITEM 3 AND 9), PERFORM PNEUMATIC PRESSURE TEST ON EACH ASSEMBLY TO ~~150 PSIG +5/-0~~ PSIG PER ASME B31.3. MAINTAIN PRESSURE FOR 10 MINUTES AND VERIFY NO LEAKAGE FROM THREADED CONNECTIONS.

9 INSTALL APPROPRIATE CONNECTION TO MATE WITH SELECTED FIELD AIR COMPRESSOR UNIT AND SUPPLIED SPARE QUICK DISCONNECT PLUG.

10. HOSE ASSEMBLY ITEMS 34, TO BE HYDROSTATICALLY TESTED BY MANUFACTURER IN ACCORDANCE WITH RUBBER MANUFACTURERS ASSOCIATION. DESIGN PRESSURE FOR HOSE ASSEMBLY IS 150 PSIG. PERFORM HYDROSTATIC PRESSURE TEST TO 300 PSIG +10/-0 PER RMA-IP-2. MAINTAIN PRESSURE FOR 5 MINUTES WHILE INSPECTING FOR LEAKS, FITTING SLIPPAGE, OR WEAKNESS OF HOSE STRUCTURE.
11. FOLLOWING FABRICATION OF OFFLOADING HOSE ASSEMBLY (ITEM 6), POLAR TANKER ADAPTER ASSEMBLY (ITEM 8) AND WATER CONTROL SKID ADAPTER ASSEMBLY (ITEM 10) PERFORM HYDROSTATIC PRESSURE TEST TO 225 PSIG +10/-0 PSIG PER ASME B31.3. MAINTAIN PRESSURE FOR 10 MINUTES AND VERIFY NO LEAKAGE FROM END CONNECTIONS AND HOSE. COMPLETELY DRAIN HOSE ASSEMBLY FOLLOWING TESTING.

12 LABEL DETAIL
CONTENTS: POLAR TANKER CONNECTION END
TEXT TYPE: BLOCK
MATERIAL: PHENELIC
TEXT COLORS: BLACK LETTERING ON WHITE BACKGROUND
TEXT SIZE: 3/16" HIGH CHARACTERS

PARTS LIST/MATERIAL LIST

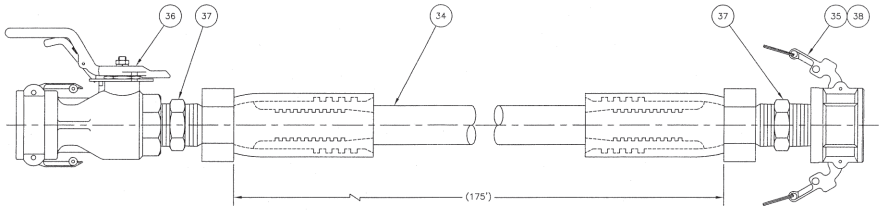
QTY -100	-200	-300	-400	-500	-600	-700	-800	-900	PARTS / DWG# NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO.
										CONCENTRIC REDUCER, 2" FNPT X 1" FNPT, SST	ASTM A182	2	44
			1						200-F-SS	ADAPTER, MALE, 2" X 2" MNPT	DIXON	2	45
			1						200-DC-SS	DUST CAP, 2"	DIXON	2	46
								1	N4580U-EZM	PRESSURE REDUCING VALVE 1" FNPT X 1" FNPT, 25-75 PSI	WATTS	1	47
								1	B-16-HRN-12	HEX REDUCING NIPPLE, 1" MNPT X 3/4" MNPT	SWAGELOK	1	48
								1	B6-KP31	QUICK DISCONNECT, MALE, 3/4" FNPT	HANSEN	1	49
								1	P-PDC-6-HK	DUST CAP, 3/4" (6-HK)	HANSEN	1	50
							1		P-SDC-6-HK	DUST PLUG, 3/4" (6-HK)	HANSEN	1	51
						1			307055	COUPLER, FEMALE, 3/4" FNPT	EVER-TITE	2	52
						1			307095S	DUST PLUG, 3/4"	EVER-TITE	2	53
					1				RB200BL	COUPLER, FEMALE, 2" MNPT, BOSS-LOCK	DIXON	2	54
					1					REDUCER, 3" FNPT X 2" FNPT	ASTM A182 OR A351 OR F304	3	55
					1				330BSS	COUPLER, FEMALE, 3" MNPT	EVER-TITE	2	56
					1				SS-12C4-1	CHECK VALVE, 3/4" FNPT	SWAGELOK	2	57

PARTS LIST/MATERIAL LIST

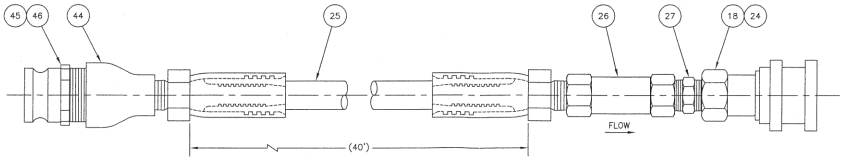
QTY -100	-200	-300	-400	-500	-600	-700	-800	-900	PARTS / DWG# NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO.
									-010	FLUSH WATER HOSE ASSEMBLY (FLUSH MANIFOLD TO PUMP RISER BOX)		1	1
									-020	PUMP FLUSH HOSE ASSEMBLY (WATER TRUCK TO FLUSH MANIFOLD)		1	2
									-030	AIR HOSE ASSEMBLY (COMPRESSOR TO FLUSH MANIFOLD)		1	3
									-040	DISCHARGE HOSE ASSEMBLY (PUMP RISER BOX TO VALVE MANIFOLD)		2	4
									-050	DISCHARGE HOSE ASSEMBLY (VALVE MANIFOLD TO TANKER)		2	5
									-060	OFF LOADING HOSE ASSEMBLY (TANKER TO 241-AP TANK)		2	6
									-070	TANKER WATER HOSE ASSEMBLY (WATER CONTROL SKID TO TANKER)		2	7
									-080	POLAR TANKER ADAPTER ASSEMBLY		2	8
									-090	TANKER AIR HOSE ASSEMBLY (AIR PRESSURE CONTROL MANIFOLD TO TANKER)		2	9
									-100	WATER CONTROL SKID ADAPTER ASSEMBLY		2	10
													11
													12
													13
													14
	1				1				ML8-KP36	QUICK DISCONNECT, MALE, 1" FNPT	HANSEN	2	15
	1			2	1				SS-16-HN	HEX NIPPLE, 1" MNPT	SWAGELOK	2	16
							1	1	100-DP-SS	DUST PLUG, 1"	DIXON	1,2	17
			1	2	1				ML8-KP36	QUICK DISCONNECT, FEMALE, 1" FNPT	HANSEN	2	18
						1			ML4-KP26	QUICK DISCONNECT, FEMALE, 1/2" FNPT	HANSEN	1	19
						1			P-SDC-4-HK	DUST PLUG, 1/2" (4-HK)	HANSEN	1	20
	1				1				P-PDC-8-HK	DUST CAP, 1" (8-HK)	HANSEN	2	21
				2	1				7105RL	BALL VALVE, FULL PORT, 1" FNPT	FLOWTEK	2	22
							1		ML6-KP31	QUICK DISCONNECT, FEMALE, 3/4" FNPT	HANSEN	1	23
			1	2	1				P-SDC-8-HK	DUST PLUG, 1" (8-HK)	HANSEN	2	24
		AR	AR	AR		AR				GOODYEAR 1" HORIZON, 300 W/ 1" MNPT ENDS	GOODYEAR	1,2	25
		1							SS-16C4-1	CHECK VALVE, 1" FNPT	SWAGELOK	2	26
		1							SS-16-HN	HEX NIPPLE, 1" MNPT	SWAGELOK	2	27
	AR						AR			GOODYEAR 3/4" HORIZON, 300 W/ 3/4" MNPT ENDS	GOODYEAR	1	28
								1	SS-16-RB-12	REDUCING BUSHING, 1" MNPT X 3/4" FNPT	SWAGELOK	1	28
							1		RB100BL	COUPLER, FEMALE 1" FNPT, BOSS-LOCK	DIXON	1,2	30
	1								RB075BL	COUPLER, FEMALE 3/4" MNPT BOSS-LOCK	DIXON	2	31
					1				B4-KP26	QUICK DISCONNECT, FEMALE, 1/2" FNPT	HANSEN	2	32
					1				B4-KP26	ADAPTER, MALE, QUICK DISCONNECT 1/2" FNPT	HANSEN	1,2	33
		AR								GOODYEAR 1 1/2" HORIZON, 200 W/ 1 1/2" MNPT ENDS	GOODYEAR	2	34
		1							RD200BL	COUPLER, FEMALE 2" FNPT, BOSS-LOCK	DIXON	2	35
	1	1							(MD200)	GAM COUPLING, 2" FNPT, SST NITON OR EPDM	(PT COUPLING)	2	36
		2								REDUCING BUSHING, 2" MNPT X 1 1/2" FNPT, SST	ASTM A182	2	37
		1							200-DP-SS	DUST PLUG, 2"	DIXON	2	38
	AR									GOODYEAR 1 1/2" HORIZON, 300 W/ 1 1/2" MNPT ENDS	GOODYEAR	2	39
	1									REDUCING BUSHING, 2" MNPT X 1" FNPT, SST	ASTM A182	2	40
	1								SS-16-9E	STREET ELBOW, 1" MNPT X 1" FNPT	SWAGELOK	2	41
	1		1						200-DP-SS	DUST PLUG, 2 1/2"	DIXON	2	42
	1								75-DP-SS	DUST PLUG, 3/4"	DIXON	2	43

Document/Drawing No. H-14-107514 Sheet 2 Revision 0

WAS:



6 OFF LOADING HOSE ASSEMBLY
(TANKER TO 241-AP TANK)
SCALE: 1/2

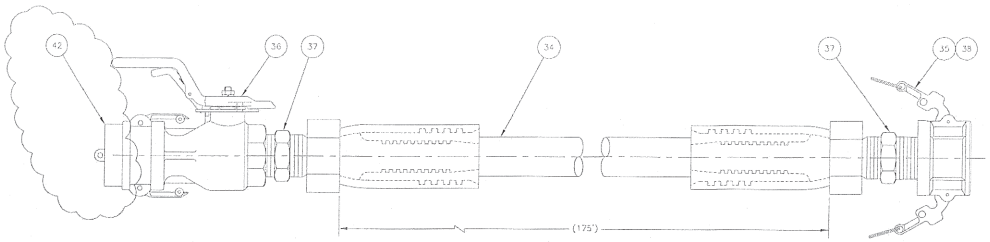


7 TANKER WATER HOSE ASSEMBLY
(WATER TRUCK TO TANKER)
SCALE: 1/2

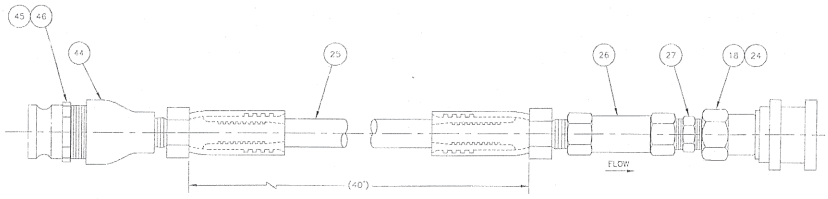
1a. ECN-725736 R0
1b. Proj. ECN N/A

Document/Drawing No. H-14-107514 Sheet 2 Revision 0

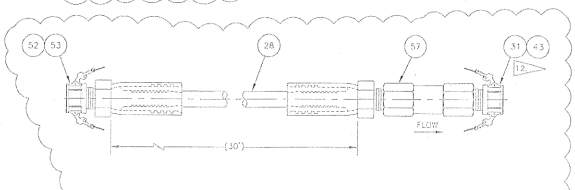
IS:



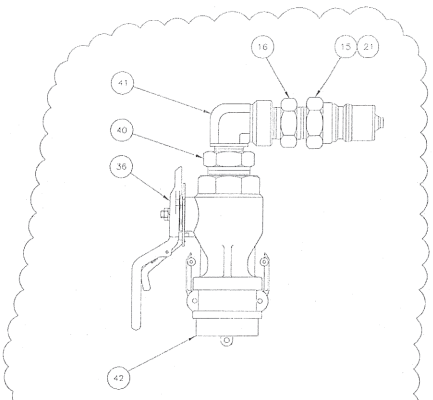
6 OFF LOADING HOSE ASSEMBLY
(TANKER TO 241-AP TANK)
SCALE: 1/2



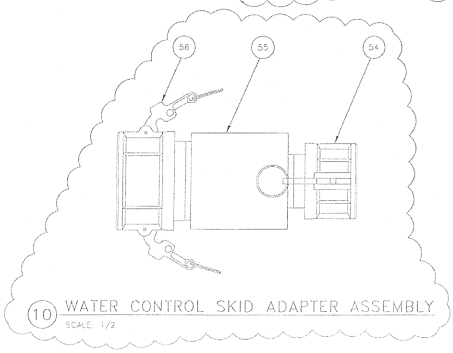
7 TANKER WATER HOSE ASSEMBLY
(WATER CONTROL SKID TO TANKER)
SCALE: 1/2



9 TANKER AIR HOSE ASSEMBLY
(AIR PRESSURE CONTROL MANIFOLD TO TANKER)
SCALE: 1/2



8 POLAR TANKER ADAPTER ASSEMBLY
SCALE: 1/2



10 WATER CONTROL SKID ADAPTER ASSEMBLY
SCALE: 1/2

Document/Drawing No. H-14-107515 Sheet 1 Revision 0 INCORPORATES CHANGES MADE BY ECN-725351-R0.

WAS:

PARTS LIST/MATERIAL LIST

QTY REQD -010		PARTS / DASH NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO
	X	-010	TANKER INLET/BREATHER ASSEMBLY		1	1
						2
						3
						4
	1	0-007-1-12-RF-NU-00-E3-Z04059	BREATHER FILTER, 40 CFM, WITH WEATHER COVER	FLANDERS	1	5
	1	P-PDC-8-HK	DUST CAP, 1" (4-HK)	HANSEN	1	6
	1	71053 RRL	VALVE, BALL, 1" FNPT, FULL PORT SST, 7000 SERIES	FLOWTEK	1	7
	1	ML8-KP36	CONNECTION, PLUG, SST	HANSEN	1	8
	1	SS-16-HN	HEX NIPPLE, 1" NPT, SST	SWAGELOK	1	9
	1	SS-16-SE	STREET ELBOW, 1" NPT, SST	SWAGELOK	1	10
	1		PIPE, 1" X 6" SCH 40, SST, SEAMLESS	ASTM A312/A376	1	11
	1		BLIND FLANGE, 4" 150#, SST, RF	ASTM A182	1	12
	AR		NIPPLE, 1 1/2" SCH 40, 14", SEAMLESS	SST	1	13
	8		FLAT WASHER, 5/8	SST	1	14
	1		4" FLANGE GASKET, 1/8" THK	GARLOCK BLUE 3000	1	15
	8		BOLT, HEX HEAD, 5/8-11UNC-2A 3 1/2" LONG	ASTM A193 GR 8	1	16
	8		NUT, HEX HEAD, 5/8-11UNC-2B	ASTM A194 GR 8B	1	17
	1		COUPLING, 1 1/2" FNPT #150	SST	1	18

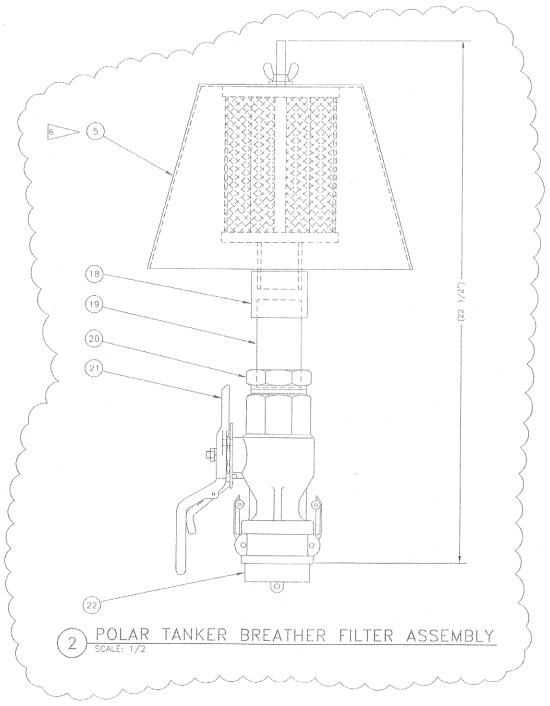
CH2M HILL ENGINEERING CHANGE NOTICE
CONTINUATION SHEET

1a. ECN-725736 R0

1b. Proj. ECN N/A

Document/Drawing No. H-14-107515 Sheet 1 Revision 0

IS:



2 POLAR TANKER BREATHER FILTER ASSEMBLY
SCALE: 1/2

PARTS LIST/MATERIAL LIST

QTY REQD -010	QTY REQD -020	PARTS / DASH NUMBER	NOMENCLATURE/DESCRIPTION	MATERIAL/REFERENCE	SHEET	ITEM NO
		-010	TANKER INLET/BREATHER ASSEMBLY		1	1
		-020	POLAR TANKER BREATHER FILTER ASSEMBLY		1	2
						3
						4
1		9-887-1-12-HF-MS-00-E2-204059/F0622997	BREATHER FILTER, 40 CFM, WITH WEATHER COVER	FLANDERS	1	5
	1	P-PDC-8-HK	DUST CAP, 1" (4-HK)	HANSEN	1	6
	1	71053 RRL	VALVE, BALL, 1" FNPT, FULL PORT SST, 7000 SERIES	FLOWTEK	1	7
	1	ML8-KP36	CONNECTION, PLUG, SST	HANSEN	1	8
	1	SS-16-HN	HEX NIPPLE, 1" NPT, SST	SWAGELOK	1	9
	1	SS-16-SE	STREET ELBOW, 1" NPT, SST	SWAGELOK	1	10
	1		PIPE, 1" X 6" SCH 40, SST, SEAMLESS	ASTM A312/A376	1	11
	1		BLIND FLANGE, 4" 150#, SST, RF	ASTM A182	1	12
	AR		NIPPLE, 1 1/2" SCH 40, 14", SEAMLESS	SST	1	13
	8		FLAT WASHER, 5/8	SST	1	14
	1		4" FLANGE GASKET, 1/8" THK	GARLOCK BLUE 3000	1	15
	8		BOLT, HEX HEAD, 5/8-11UNC-2A 3 1/2" LONG	ASTM A193 GR B	1	16
	8		NUT, HEX HEAD, 5/8-11UNC-2B	ASTM A194 GR B8	1	17
1	1		COUPLING, 1 1/2" FNPT	ASTM A182 OR A351 OR F304	1	18
1			PIPE NIPPLE, 1 1/2" SCH 40, 4", SEAMLESS, SST	ASTM A312/A376 OR A733	1	19
1			HEX REDUCER, 2" MNPT X 1 1/2" FNPT, SST	ASTM A182 OR A351 OR F304	1	20
1		(MD20D)	DRY COUPLING, 2" FNPT, SST, VITON	(PT COUPLING)	1	21
1		250-DP-SS	DUST PLUG, 2 1/2"	DIXON	1	22

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CH2M HILL ENGINEERING CHANGE NOTICE

Page 1 of 9 ☐ DM ☒ FM ☐ TM

1a. ECN 725736 R 0

1b. Proj. ECN N/A - - R

2. Simple Modification ☒ Yes ☐ No	3. Design Inputs – For full ECNs, record information on the ECN-1 Form (not required for Simple Modifications)		4. Date July 31, 2008
5. Originator's Name, Organization, MSIN, & Phone No. John Elsen, Columbia Energy & Environmental Services (CEES), B8-12, 946-7111	6. PrHA Number No. 00080 R - 0 ☐ N/A	7. USQ Number No. TF - 08 - 1232 - D R - D 1405 ☐ N/A	8. Related ECNs N/A
9. Title 240-S-302 Pumping System Changes to Address Use Of The Polar Tanker	10. Bldg. / Facility No. N/A	11. Equipment / Component ID N/A	12. Approval Designator N/A
13. Engineering Documents/Drawings to be Changed (Incl. Sheet & Rev. Nos.) H-14-107514 Sheet 1, Rev. 0 (see page 3 for continuation)		14. Safety Designation ☐ SC ☐ SS ☒ GS ☐ N/A	15. Expedited/Off-Shift ECN? ☐ Yes ☒ No
16a. Work Package Number CLO-WO-07-0962 CLO-WO-07-0963	16b. Modification Work Completed SEP 18 2008 KJ Hull 9/18/2008 Responsible Engineer / Date	16c. Restored to Original Status (TM) 18 STA 3 N/A Responsible Engineer / Date	17. Fabrication Support ECN? ☐ Yes ☒ No

18. **Description of the Change** (Use ECN Continuation pages as needed)

PROBLEM STATEMENT: An alternate transport tanker is necessary to support the transfer of pumped liquid from catch tank 240-S-302 located in the 200 West Area, to the 241-AP-106 DST located in the 200 East Area. The 5000 gallon Walker tanker was originally planned to support this operation. Due to a radiological hot-spot identified during the performance of base line surveying the Walker tanker is not to be utilized. The 5000 gallon Polar Tanker (H-9-203) will be utilized. The Polar tanker is a top load/unload tanker and will require pneumatic assistance for the DST off-load. Additionally, the Polar tanker has different hose connections than the Walker and requires alternate hose connections. Adapter assemblies are to be fabricated to support the use of the 240-S-302 pumping system hoses already fabricated and tested.

DEFINED SOLUTION: Update released design media as shown within this ECN to support changes for the alternate hose connections on the Polar tanker and to support the use of the existing Air Pressure Control Manifold (H-14-105394) and Water Control Skid (H-14-105395) at the 241-AP off load location.

See page 3 for continuation.

19. **Justification of the Change** (Use ECN Continuation pages as needed) Engineering Rework ☐ Yes ☒ No Training Impact ☐ Yes ☒ No

Prior to the use of the originally planned Walker tanker for transporting the pumped 240-S-302 liquids to 241-AP-106 a radiological hot-spot was identified during baseline radiological survey. Due to the hot-spot, it was determined that an alternate transport tanker would be used. The Polar tanker (H-9-203) will be used in place of the Walker tanker, in the 240-S-302 pumping system. The Polar tanker is a top load/unload tanker and has different style hose connectors than the Walker tanker. Alternate hose connectors and adapters will be used to support hose and breather filter installations during loading and unloading.
Additionally, the Polar tanker will be off-loaded using pneumatic assistance (15 psig), versus the planned gravity drain from the bottom off-load Walker tanker.

20. **ECN Category**

☐ Direct Revision
☒ Supplemental
☐ Void/Cancel

ECN Type

☐ Supersedure
☐ Revision

21. **Distribution**

Name	MSIN	Name	MSIN
DG Baide	S7-24	SM O'Toole	S7-90
RB Calmus	S7-75	SD Doss	S7-03
EO Thorne	R3-26	MH Brown	S7-03
JJ Elsen	B8-12	GJ Gauck	S7-24
MA Fish	S7-24		
SD Kozlowski	R2-58		
TL Faust	S5-07		

Release Stamp

AUG 25 2008
DATE:
STA: 4
HANFORD RELEASE
ID: 58

A-6003-563.1 (REV 6)

SEP 10 2008 STA 3

CH2M HILL ENGINEERING CHANGE NOTICE

Page 2 of 9 ☒ DM ☐ FM ☐ TM

1a. ECN 725736 R 0

1b. Proj. ECN N/A - - R

22. **Revisions Planned** (Include a brief description of the contents of each revision)
None

Note: All revisions shall have the approvals of the affected organizations as identified in block 12 "Approval Designator," on page 1 of this ECN.

23. **Commercial Grade Item Dedication Numbers** (associated with this design change)
None

24. **Engineering Data Transmittal Numbers** (associated with this design change, e.g., new drawings, new documents)
None

25. **Other Non Engineering (not In HDCS) documents that need to be modified due to this change**

Type of Document	Document Number	Update Completed On	Responsible Engineer (print/sign and date)
Alarm Response Procedure	N/A	N/A	N/A
Operations Procedure	N/A	N/A	N/A
Maintenance Procedure	N/A	N/A	N/A
N/A	N/A	N/A	N/A

26. **Field Change Notice(s) Used?**
☐ Yes ☒ No
If Yes, Record Information on the ECN-2 Form, attach form(s), include a description of the interim resolution on ECN Page 1, block 18, and identify permanent changes.

NOTE: ECNs are required to record and approve all FCNs issued. If the FCNs have not changed the original design media then they are just incorporated into the design media via an ECN. If the FCN did change the original design media then the ECN will include the necessary engineering changes to the original design media.

27. **Design Verification Required?**
☐ Yes ☒ No
If Yes, as a minimum attach the one page checklist from TFC-ENG-DESIGN-P-17.

28. **Approvals**

Facility/Project Signatures		Date	A/E Signatures		Date
Resp. Engineer	SM O'Toole M. H. Brown for	8-5-08	Originator/Design Agent	JJ Elsen	7/31/08
Resp. Manager	DG Baide	8-25-08	Professional Engineer		
Quality Assurance			Project Engineer		
IS&H Engineer			Quality Assurance		
NS&L Engineer			Safety		
Environ. Engineer			Designer		
Engineering Checker	MA Fish	8/5/08	Environ. Engineer		
Other	TR FARRIS	8/25/08	Other		
Other			Other		
Other			DEPARTMENT OF ENERGY / OFFICE OF RIVER PROTECTION		
Other			Signature or a Control Number that tracks the Approval Signature		
Other					
Other			ADDITIONAL SIGNATURES		
Other					
Other					